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| Presentation Title: | "Signposts of Planet Formation in the Disk of GM Aur" |
| Poster or Paper: | Talk |
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Abstract:
Rice et al. (2006) noted that transitional disks hosting massive Jovian-mass planets (Mpl > 6 Mj) should have suppressed accretion onto the star, while bringing about an absence of 10 μm silicate emission. Their models also predict systems with less massive planets (0.5 Mj < Mpl < 5 Mj) should permit small grain dust and some gas to filter into the cavity, leaving larger grains confined to the outer disk. Such systems are expected to have polarized light originating within the cavity, silicate emission, and small-grain reflection nebulosity detectable in FUV high-contrast imagery. A further consequence is that molecular gas should be less abundant in the inner disk due to photodissociation by the stellar FUV radiation field. GM Aur is a T-Tauri star/transitional disk system, observed at 5 μm < λ < 36 μm (Calvet et al. 2005) and 840 μm < λ < 2.7 mm (Hughes et al. 2009), where both 10 &# 956;m silicate emission and a 24 AU cavity has been detected. We continue the analysis of GM Aur with FUV and optical HST imagery and report the presence of small-grain reflection nebulosity detected from 1400 - 2000 Å in the cavity region, as well as a molecular outflow that has an inner radius corresponding to the cavity wall. These data, together with the presence of silicate emission, suggest that GM Aur hosts a planet with likely mass between 1 and 5 Mj.